

## REMARKS

## Status of the Claims

Claims 19-39 remain pending in the present application, Claims 1-18 having been canceled without prejudice, as being directed to non-elected claims in response to a Restriction issued by the Examiner. However, applicants reserve the right to file a divisional application that includes non-elected Claims 1-18 during the pendency of the present application.

Claim 19 has been amended to emphasize the substantial differences between the approach disclosed in the prior art and the subject matter recited in applicants' claims.

### Restriction/Election

In response to a Telephone Restriction, in which the Examiner restricted the claims in the present application to two patentably distinct groups, including Group I with Claims 1-18, which are drawn to a method for detecting internal bleeding, and Group II with Claims 19-39, which are drawn to an apparatus for detecting internal bleeding. The Examiner noted that the apparatus in Group II can be used for purposes other than signal processing to detect internal bleeding and that the claims in both groups “do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features....” On August 3, 2009, applicants’ attorney telephoned the Examiner to elect the Claims in Group II, with traverse.

Applicants hereby affirm their election of Claims 19-39 in Group II, but have chosen not to submit a written traverse of the Restriction.

Respectfully, the Examiner should note that it is not customary for an applicant to provide any verbal arguments traversing a Restriction when making an election to a Telephone Restriction, even if the election is made “with traverse,” since an applicant is thereby *preserving the option* to submit a written traverse of the Restriction when preparing a response to the next Office Action in which the Restriction is formally presented.

## Claim Objections

The Examiner has objected to Claim 19 because he believes that the word “An” should precede the word “apparatus” in line 1 of the claim. Applicants respectfully disagree. The word “apparatus,” as used in claims, typically refers to a plurality of components or elements and in that sense, is viewed as a plural noun, which does not require the article “an.” As an aside, applicants’ attorney notes that historically, the word “apparatus” is used as the first word of claims without the article “an” in literally millions of issued patents.

1 While some patent practitioners prefer to use the phrase “An apparatus,” there is no legal requirement nor  
2 any rule that justifies the Examiner raising an objection to applicants’ use of the word “apparatus” without  
3 the article “an.” The Examiner is referred to the Merriam-Webster Online dictionary entry for “apparatus”  
4 at <http://www.merriam-webster.com/dictionary/apparatus>, which indicates that the plural form is either  
5 “apparatuses” or “apparatus.” Since it is appropriate to first introduce a plural element in a claim without  
6 using the articles “an” or “a,” it will be apparent that applicants are free to use the word “apparatus” without  
7 the article “an,” and this objection should be withdrawn. It is respectfully suggested that the Examiner  
8 discuss this matter with his Supervising Examiner before making the objection in a further Office Action, or  
9 alternatively, provide a specific reference to a rule that is on point, e.g., in the MPEP, to justify maintaining  
10 the objection.

11 Claims Rejected under 35 U.S.C. § 103(a)

12 The Examiner has rejected Claims 19-28 and 33-39 under 35 U.S.C. § 103(a) as being unpatentable  
13 over U.S. Patent No. 5,919,139 (Lin). It is the Examiner’s position that Lin teaches a system and approach  
14 for using vibrations to image internal structures of living organisms, and the Examiner concludes that  
15 although Lin does not specifically mention that his system is used to detect internal bleeding, “one with  
16 ordinary skill in the art at the time the invention was made would have been motivated to modify the Lin  
17 reference by using the system to detect internal bleeding, for the purpose of diagnosing hemorrhages in  
18 order to prescribe the best possible treatment.” Applicants respectfully disagree for the reasons noted below.

19 In the interest of reducing the complexity of the issues for the Examiner to consider in this response,  
20 the following discussion focuses on independent Claim 19. The patentability of each remaining dependent  
21 claim is not necessarily separately addressed in detail. However, applicants’ decision not to discuss the  
22 differences between the cited art and each dependent claim should not be considered as an admission that  
23 applicants concur with the Examiner’s conclusion that these dependent claims are not patentable over the  
24 disclosure in the cited references. Similarly, applicants’ decision not to discuss differences between the  
25 prior art and every claim element, or every comment made by the Examiner, should not be considered as an  
26 admission that applicants concur with the Examiner’s interpretation and assertions regarding those claims.  
27 Indeed, applicants believe that all of the dependent claims patentably distinguish over the references cited.  
28 In any event, a specific traverse of the rejection of each dependent claim is not required, since dependent  
29 claims are patentable for at least the same reasons as the independent claim from which the dependent  
30 claims ultimately depend.

## Patentability of Independent Claim 19

In explaining his rejection of applicants' claims, the Examiner noted that Lin discloses "using an audio frequency vibrational source." The Examiner further noted that Lin teaches, "A first transducer transmits vibrational energy of a first frequency into an area of a subject to be scanned," and "An ultrasound transducer transmits ultrasound pulses into the area." The Examiner also indicated that, "The vibrational energy transmitted by the first transducer induces palpable vibrations in the tissue medium of the area to be scanned." Thus, it is clear that Lin requires an audio frequency vibrational source be used to induce vibrations in the internal tissue.

In contrast to the teaching of Lin, applicants' approach does not need and does not use any such external audio frequency vibrational source. Instead, applicants' approach "localizes a bleeding site by imaging tissue vibrations caused by arterial bleeding into a free space." Applicants explain further that, "***Sounds caused by these vibrations (bruits) are sometimes audible using a stethoscope or palpable at the skin surface and are indicative of internal bleeding in a trauma patient.***" (See page 3, lines 30-33 of applicants' specification – emphasis added.) The vibrations thus occur naturally as a result of bleeding – NOT because they are induced by an external audio frequency vibrational source. Applicants further disagree that it would be obvious to somehow modify Lin's apparatus to detect bleeding at an internal site using ultrasound, since it is not even clear that Lin's approach can induce vibrations of tissue at an internal bleeding site or that the bleeding would then be evident in ultrasound images of the site. Since Lin does not mention the use of his system to detect internal bleeding, applicants are hard pressed to understand why one of ordinary skill in the art would even attempt to use Lin's system for such a purpose. Certainly, there is no reason why one of ordinary skill in the art would be led to NOT use the external audio frequency vibrational source taught by Lin, or would understand HOW to modify Lin to detect bleeding at an internal site if the external audio frequency vibrational source were not employed. The lack of any teaching or suggestion by Lin regarding using ONLY ultrasound to detect naturally occurring vibrations caused by bleeding makes it clear that applicants' approach is not obvious in view of Lin.

To emphasize these differences between Lin and applicants' recited approach, Claim 19 has been amended as follows:

19. Apparatus for detecting bleeding at an internal site using ultrasound, comprising:

  - (a) an ultrasound transducer;
  - (b) a control system coupled to the ultrasound transducer to control its operation; and

(c) a tissue vibration processor that processes the ultrasound to identify *naturally occurring* tissue vibrations that are *caused by internal bleeding* and are *not induced by any external device*, producing a signal indicating the internal bleeding. (Emphasis added.)

Based on the recitation of Claim 19 as amended, it will be apparent that the Examiner is not justified in asserting that the recited subject matter would be obvious in view of Lin. The amendment makes it very clear that the tissue vibration processor is processing naturally occurring tissue vibrations caused by internal bleeding (e.g., the bruits noted above) and that these vibrations are not induced by any external device, such as the audio frequency vibrational source of Lin. The claim recites novel and non-obvious subject matter that is now more clearly patentable over the art cited, and the rejection of Claim 19 over Lin should now be withdrawn.

Because dependent claims inherently include each element recited in the independent claim upon which they ultimately depend, each claim depending upon independent Claim 19 is patentable for at least the same reasons as those discussed above. Accordingly, the rejection of dependent Claims 20-28 and 33-39 should also be withdrawn.

#### Claims with Allowable Subject Matter

The Examiner notes that Claims 29-32 are objected to as being dependent upon a rejected base claim, but indicates that these claims would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. Applicants decline to do so at this time, since it is apparent that the base claim, i.e., Claim 19, is patentable over the art of record.

In consideration of the amendment to the claims and the Remarks set forth above, it is applicants' position that all claims in the current application are patentable over the art of record. The Examiner is thus requested to pass this case to issue without further delay. In the event that any other issues remain, the Examiner is invited to telephone applicants' attorney at the number listed below.

Respectfully submitted,

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